10 January 1963

MEMORANDUM FOR: Deputy Director (Intelligence)

SUBJECT   : Project CHIVE - Quarterly Report (October-December 1962)

1. Recapitulation:

Project CHIVE is the DD/I computing development program. Project CHIVE is being conducted for the DD/I by the CIA Automatic Data Processing Staff (ADPS). IBM is serving as contractor to assist ADPS on Project CHIVE.

The three principal tasks of Project CHIVE are:

(1) to establish a DD/I Computer Center;

(2) to develop and perform appropriate computing tasks on the DD/I computer center in support of DD/I needs;

(3) to study the DD/I Area to determine the nature and scope of the long-range computing needs and to design EDP systems to meet those needs.

2. Delivery of DD/I Computer System - 21 January 1963

The DD/I Computer will be delivered by IBM on 21 January 1963. The system will be installed on the ground floor, Headquarters Building. The computer site will be secure for the handling of top secret and special category materials. Completion of hardware installation is anticipated by 1 February 1963.

The CHIVE computer system is an IBM 1410/1401 system with ten magnetic tape stations, cpre memories of 40,000 and 4,000 characters, and two high-speed printers. The system will not, initially, possess a random access disk device.

The CHIVE 1410/1401 is a variable word-length system of medium scale. It can read, write, and compute simultaneously. It can work with punched cards, paper tape, and magnetic tape (and disks). It will accept programs written in both FORTRAN (mathematical language) and COBOL (business language)--in addition, of course, to the basic machine-oriented programming languages.

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It is anticipated that the CHIVE computer center will go from a single-shift to a two-shift operation by early spring 1963.

3. <u>Computer Applications</u> (Special Projects)

Through the cooperation of the DD/P in permitting use of their WALNUT computer system, CHIVE personnel have to date produced outputs on seven DD/I applications (special projects). These include two FORTRAN applications. CHIVE use of the DD/P computer has been limited to the midnight shift when the DD/P could relinquish its machine to ADPS personnel.

<u>For a listing of present special projects and their status, see the CHIVE Special Project Status Report (attached).</u>

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4. _____ (NIC study)

One of the "special projects" within CHIVE has been a six-month study of the National Indications Center (NIC) to determine what role automatic data processing techniques and capabilities might play in the NIC function. This task, named _____ was given to   25X1

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the [_____] to perform--although Agency personnel have played a considerable role in the study. [____] submitted its final report at the end of November 1962 (copies available   25X1A
from ADPS). This report and its recommendations are now under study
by Agency persons most closely concerned. Initial reaction to the [____]
report is that certain promising techniques have been conceptualized in   25X1A
the course of this study which appear to merit further development.
The Agency's decision on the scope of any continuing effort is expected
in February 1963.

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6. <u>DD/I Fact-Finding Survey</u>

In September 1962, CHIVE initiated a Fact-Finding Survey of all DD/I components. The purpose of this survey is to define the major areas of need within the DD/I to which computing capabilities might in the future be applied and to provide CHIVE with some of the facts, at

least, necessary to the design of EDP systems to meet those needs.

CHIVE survey teams, composed of ADPS and IBM personnel, have now collected information from well over 100 DD/I components ranging from Divisions to analyst-groups at the sub-section level. Present status of this Survey:

ORR   -   Completed, except Military Division, ERA; USSR Branch, Geography Division, GRA; and Special Projects Branch, St/I.

OSI   -   General Sciences Division and Life Sciences Division completed.

OO   -   Completed

OBI   -   Completed

ONE   -   Completed

OCI   -   Completed except SpINT Staff and NIS Coordinator.

OCR   -   Not yet started.

The remaining elements of ORR and OSI will be completed as soon as required clearances for IBM contractor personnel, expected by mid-January, are granted.

CHIVE surveys of all DD/I Offices, except OCR, are scheduled for completion by mid-February; the first-phase OCR study is to be completed some three-to-four weeks thereafter.

7. Document and Information Retrieval Experimentation

From the inception of Project CHIVE, the need to carry out experimentation in computing techniques relating to document and information retrieval has been stressed. During the last quarter of 1962, such an experimental effort was initiated involving both IBM and ADPS personnel. This experimental effort will commence with relatively simple techniques but as CHIVE skills develop more advanced techniques, including automatic indexing, automatic extracting, automatic file structuring, and automatic dissemination, will be incorporated. The initial data base selected for experimentation is the Soviet Ministry of Communications' publication, Vestnik Svyazi. Extensions of this data base will be added as appropriate during the development of this experimental element of the CHIVE program.

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8. Stenowriter-Machine Translation System Under Study

ADPS and OO personnel are now evaluating a special purpose computing system developed by IBM Research, Yorktown Heights, N. Y. This system makes use of the machine shorthand technique (stenotype) for speeding the transcription of data into machine processable form. The system can also operate in a machine translation mode, providing a rough Russian-to-English capability. Other potential applications of this system are under study by CHIVE.

A decision on whether or not this special purpose system should be purchased by the Agency is expected during the first quarter of 1963.

9. Paper Tape System Under Trial [   ]   STAT

The ADPS has worked with PSD and OO personnel in introducing on a trial basis specially modified Flexowriters into [   ] processing.   STAT
These modified Flexowriters will provide the means for generating auto-matically-typed, error-free master copy for offset printing. Through the use of smaller type and altered format, the number of words per page will be approximately doubled under the trial system. This, in turn, will result in significant savings in paper at PSD and will permit [   ]   STAT
to publish more information and yet remain well within the printing cap-abilities of PSD. The final paper tape produced by this system could become a very valuable by-product should automatic processing of [   ]   STAT
reports become an element of Project CHIVE.
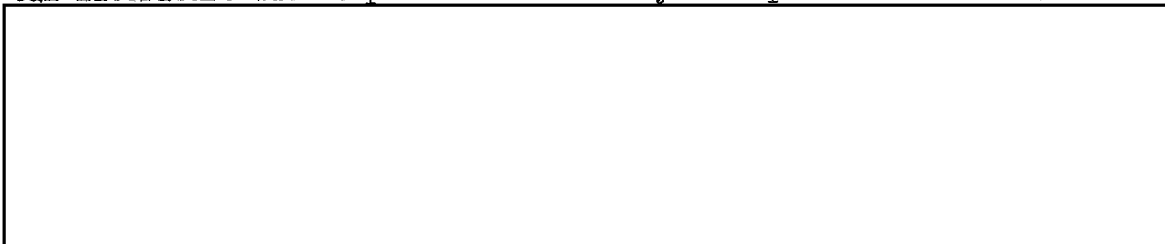
10. Sovbloc S & T Literature Control

During this quarter, a study on the storage and retrieval of   25X1A
selected intelligence data deriving from Sovbloc scientific and techni-cal literature was completed. This study encompasses OSI contracts

This CHIVE study concluded that control of Sovbloc S & T literature is important, that the Agency and the Air Force should coordinate their respective programs to capitalize on each other's efforts, and that CIA should undertake to automate the results of this exploitation program. The report is now under initial study by Agency officials. An agreed-upon plan for proceeding is expected well in advance of the contract renewal period for the next fiscal year.

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11. **CIA ADP Committee Briefed**

In December, the CIA Automatic Data Processing Committee was brought up to date on the details of the computer system to be installed for Project CHIVE. The DD/P member emphasized the advantages which may accrue from the fact that the DD/I and DD/P [   ] hardware systems are largely compatible, increasing the feasibility of running [   ] programs on the CHIVE computers and vice versa.

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12. **Space**

The CHIVE computer system will be installed in Room GE0418A-- on a temporary basis only at the suggestion of the Office of Logistics. Space peripheral to this room has been made available for operators, IBM engineers, a tape library, and storage of supplies. The Office of Logistics is now searching for a Headquarters site of more suitable shape, size, ceiling height, etc. where permanent installation will be effected.

CHIVE system analysts, computer programmers, data analysts, and IBM contract personnel are housed in Room 1E4846, Headquarters

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The CHIVE keypunch unit is located within the DD/I Special Center Area to permit handling of special category materials.

13. **Personnel**

Although recruitment of computer-trained personnel has proved a very difficult task, Project CHIVE now has a hard-core of computer specialists on board. Four additional and exceptionally qualified computer people from outside the Agency are in the recruitment pipeline at the moment and are expected to enter on duty within the first quarter of 1963.

In addition, Project CHIVE is pursuing an active training program, for its personnel averaging approximately 15% of the total hours available.

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PROJECT CHIVE

STATUS REPORT
of
SPECIAL PROJECTS IN DD/I

DEC 1962

Project Name/Consumer Org.	Objective	Status
Soviet Production Indexes ORR: D/A, USSR Branch	To compute Soviet production indexes based upon approximately 350 selected industries in the civilian sector of the Soviet economy and to construct an aggregate index.	Present Status: Operational on RCA 501 (DD/S). Block diagramming for conversion to IBM 1410/1401 operation begun. To Be Done: Complete block diagramming and programming.
Soviet Military Expenditures ORR: D/M, Military Expenditures Branch	To compute total Soviet military expenditures from data obtained from intelligence community estimates of personnel and equipment required for Soviet military units.	Present Status: Operational. Two programs are being added to the system. The need for these arose in the course of providing special runs for the Joint (CIA/DIA) Analysis Group. It has also been requested that the present system be altered to present expenditures in dollars as well as in rubles. Discussion has begun on an M/ME proposal for computer support of those other branches of ORR which prepare data as inputs to the M/ME computation now being done on the computer. Should this proposed expansion prove feasible and be implemented, the final product of the system would be essentially unchanged, but the computer would be applied at a lower level in the pyramid of computation of which the present product is the apex.

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Project Name/Consumer Org.	Objective	Status

		To Be Done:
		  Continue investigation of project expansion, and, if undertaken, complete system analysis and programming as required.
		  Complete additions and alteration of system as noted above.

Sov Bloc Strategic Military Facilities
  ORR: D/M, GM Deployment Branch
	To control data primarily about SSM, SAM, ABM, etc., facilities and to control related installations data, including storage and production facilities, regional military deports, etc. and to present these data in a form that can be used for analysis.	Present Status:
		  All SAM and MRBM site records on magnetic tape. Listing program for SAM sites operational. Summing program for SAM sites written and in final debugging. Listing program for MRBM sites operational. File maintenance program operational.
		
		To Be Done:
		  SAM site machine record to be reformatted to accomodate record expansion; immediate problems are observations and remarks beyond the capacity of the present record.
		  SAM Support Facilities record to be designed and this category of records added to the file.
		  MRBM site records to be completed (only part of record is now being used).
		  ICBM site record and file to be designed.

Chinese Nutrition
  ORR: D/R, Food & Agriculture Branch
	To prepare various arrays, frequency distributions, other machine tabulations and statistical analyses of data concerning the diet of the Chinese Communists.	Present Status:
		  Two programs completed and debugged; third program nearly complete. These programs produce arrays of data. Customer requested slight changes in print format; these are being incorporated.

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Project Name/Consumer Org.	Objective	Status

		To Be Done:
		  Operational runs on two completed programs.
		Complete and run third program.
		  Define other jobs on this data.

Soil Moisture Availability
  ORR: D/R, Food & Agri-
      culture Branch
	To estimate/predict Soviet
	crop yields based on soil mois-
	ture availability data. US and
	Canadian statistics for regions
	having analogous Soviet counter-
	parts will be studied to deter-
	mine best methods for dealing
	with the Soviet data.
		Present Status:
		  A pilot study using a desk calculator has been
		completed, and the method has been approved by
		the customer.
		
		To Be Done:
		  The method used in the pilot study is to be
		programmed for the 1410. A program to perform
		multiple linear regression calculations is also
		to be obtained or developed. Finally, a known
		method of computing soil moisture is to be
		programmed.

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Project Name/Consumer Org.	Objective	Status
		To Be Done: In cooperation with the ORR Project Officer, demonstrate system uses and capabilities to potential consumers. If there are requirements to continue the Project, establish future data input procedures.

Soviet & Chinese Crop Yields
  ORR: D/R, Food & Agriculture Branch
	To determine trends and significant deviation from trends in selected Soviet and Chinese crop yields.	Present Status:
		  Soviet Crop Yields: deferred.
		  Chinese Crop Yields: Data preparation by D/R just completed. Programs written & debugged, but code additions by D/R will necessitate minor changes. Data received from D/R all keypunched.

Missile Trajectory Analysis
  OSI: DSD, Anti-Ballistic Missile Branch
	Computer support in missile trajectory and re-entry calculations.	Present Status:
		  Two programs operational on IBM 709; runs being made as required.
		
		To Be Done:
		  Convert programs to IBM 1410. Further work in this area can proceed upon construction of suitable mathematical models by customers.

Average Increase Table
  ORR: St/P
	To compute a table of average annual rate of increase for increases up to 500% over periods up to 20 years.	Present Status:
		  This is a one-time job. It was completed on the 1410.

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Project Name/Consumer Org.	Objective	Status

Aircraft Movements
ORR, OSI, and OCI:
Various elements.
	To control information on the activity of certain Soviet aircraft for selective retrieval.	Present Status:
		  This is a new project. Customers are being interviewed and input is being analyzed.
		
		To Be Done:
		  Set the limits on input. Design systems and evaluate. Select system and implement.

25X1B	To convert the basic system from the RCA 501 (DD/S hardware) to the IBM 1410 (DD/I hardware).
	  To review the entire basic system and to recommend possible changes in design and output requirements.
		Present Status:
		  Operational on 1410 with system modified after review. This revised system is described in a report now being prepared by CHIVE.
		  Two new jobs have been defined and programming is almost complete.
		
		To Be Done:
		  Complete system description report. 25X1B
		  Complete and run new programs. Operational runs in basic system expected in January or February.

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25X1B Soviet Missile
Activity (Selected)
ORR: D/M, Guided
            Missile Production Branch
	To develop and test hypotheses about the relation of certain patterns
	to the testing of production models of strategic missiles.
		Present Status:
		  This is a new project. Record design is completed, and transcription of data has begun.
		  Logic of file creation routine is set.
		
		To Be Done:
		  Complete transcription and keypunching. Some special programs for event correlation to be defined and written.

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Project Name/Consumer Org.	Objective	Status

ELINT Intercept Analysis
DD/R: Office of ELINT
 	
(The CHIVE relation-
ship to this project
has continued in spite
of the transfer of
this function to the
DD/R.)
	To study possible ways of automating parts of the ELINT analysis process now being performed manually.	Present Status:
		  CHIVE assisted in preparation of a study for AD/OEL. This study was approved and forwarded by AD/OEL to DD/R. It recommends action on two approaches leading to operational imple-mentation decisions in July 1963. It further recommends continuing investigation of NSA general purpose computer techniques in this area. There is no immediate requirement for CHIVE computer time or programming.
		
		To Be Done:
		  Continuing Staff support to OEL in following through on DDR approved actions.

Bibliographic Project
OCR: BR
	To determine whether EDP tech-niques can be applied advan-tageously to this specialized intelligence information ac-tivity. Factors to be weighed are: technical feasibility; comparative costs; effect of system changes on both the MIRA and the analyst-file relation-ships in BR; and possibility of coordinating the effort with similar Air Force programs.	Present Status:
		  A study and systems report on the foreign S & T bibliographic file has just been completed.
		
		To Be Done:
		  Pursue recommendations contained in this report with OCR, Library of Congress, Air Force, and others.

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Project Name/Consumer Org.	Objective	Status

Vestnik Svyazi
    ORR: D/MS, Communica-
              tions Branch
	To establish an index to the contents of the Soviet journal Vestnik Svyazi, the index to be suitable for machine searching and manipulation.	Present Status:
		  This project has been incorporated into the information storage and retrieval experiment being conducted by Project CHIVE. Vestnik Svyazi will serve as the initial data base.
		                                            25X1B

Consolidated Translation Survey	To investigate the application of EDP to the maintenance of files on all translations being prepared, to the searching of these files in response to requests, and to the production from this file of the	Present Status: Report with recommendations sent to OO. Action deferred pending study of related problems in CHIVE systems study.

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Project Name/Consumer Org.	Objective	Status

Index to Report Titles and IPI
  OCR: Special Register
          and Document
          Division
	To redesign the Special Register's Report Title Index and the Document Division's Intelligence Publications Index for computer processing.	Present Status:
		  Deferred

NIS Gazetteers
  OCR: Machine Division
          for OBI
	(Note: The primary objective of this Project was to study the possible application of computers and computer printers to the printing of the NIS Gazetteers. This study revealed that the potential advantages are not commensurate with the cost and the difficulties generated by trying to use today's equipment. Nonetheless, Project CHIVE and Printing Services Division are cooperating in maintaining awareness of developments in computer-driven printing schemes some of which may prove applicable to this problem.)	